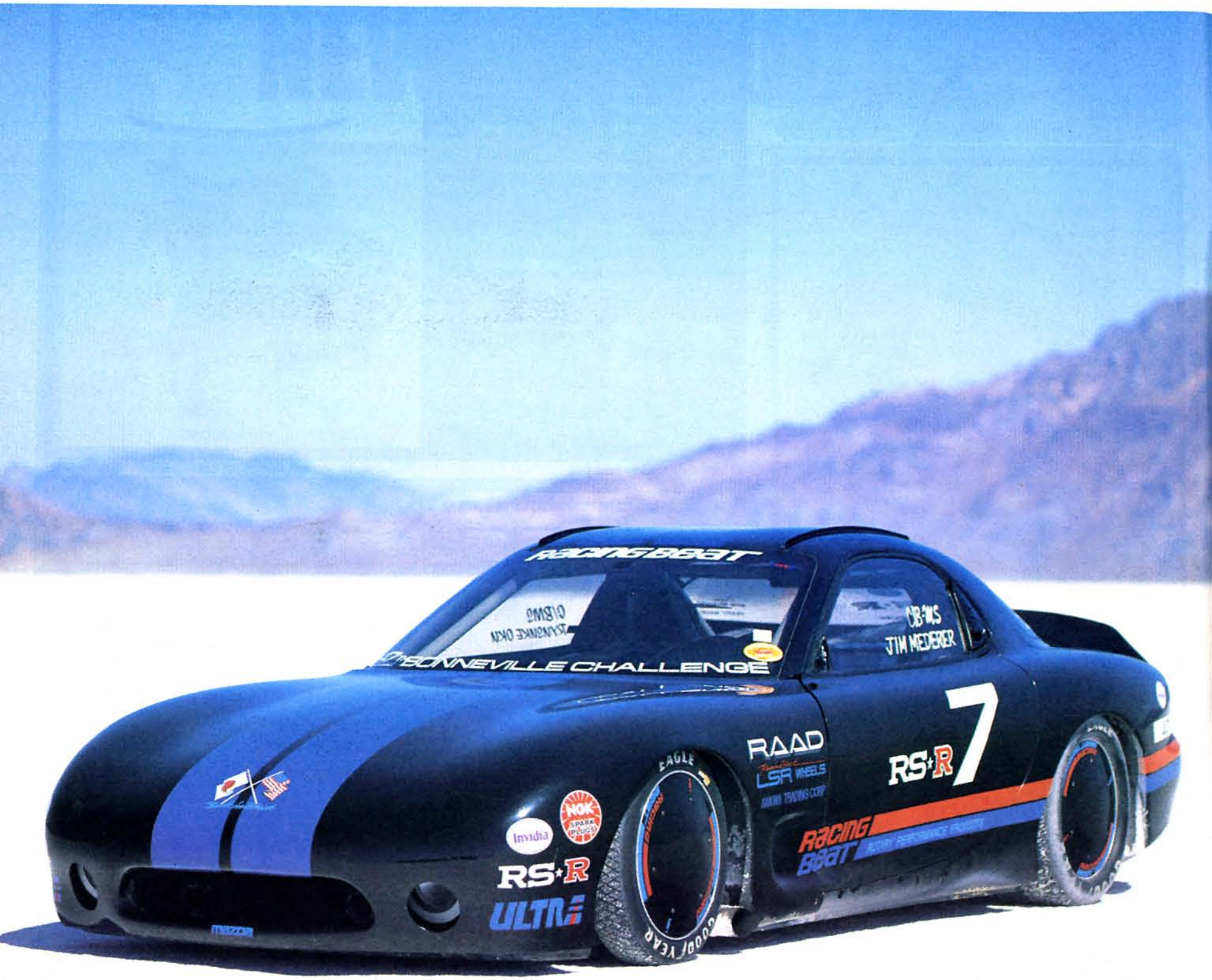
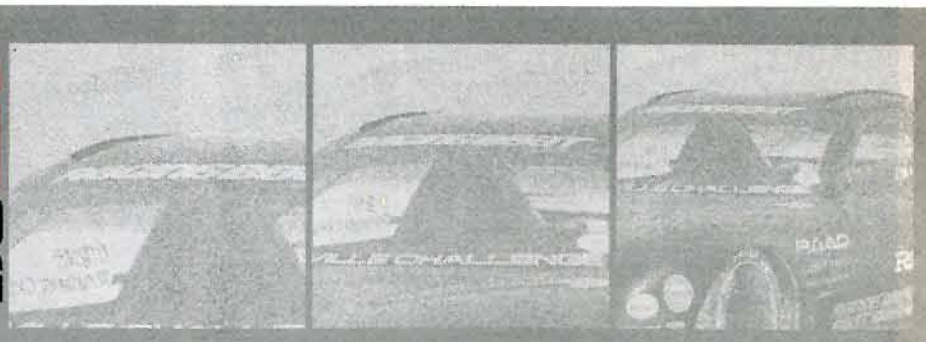
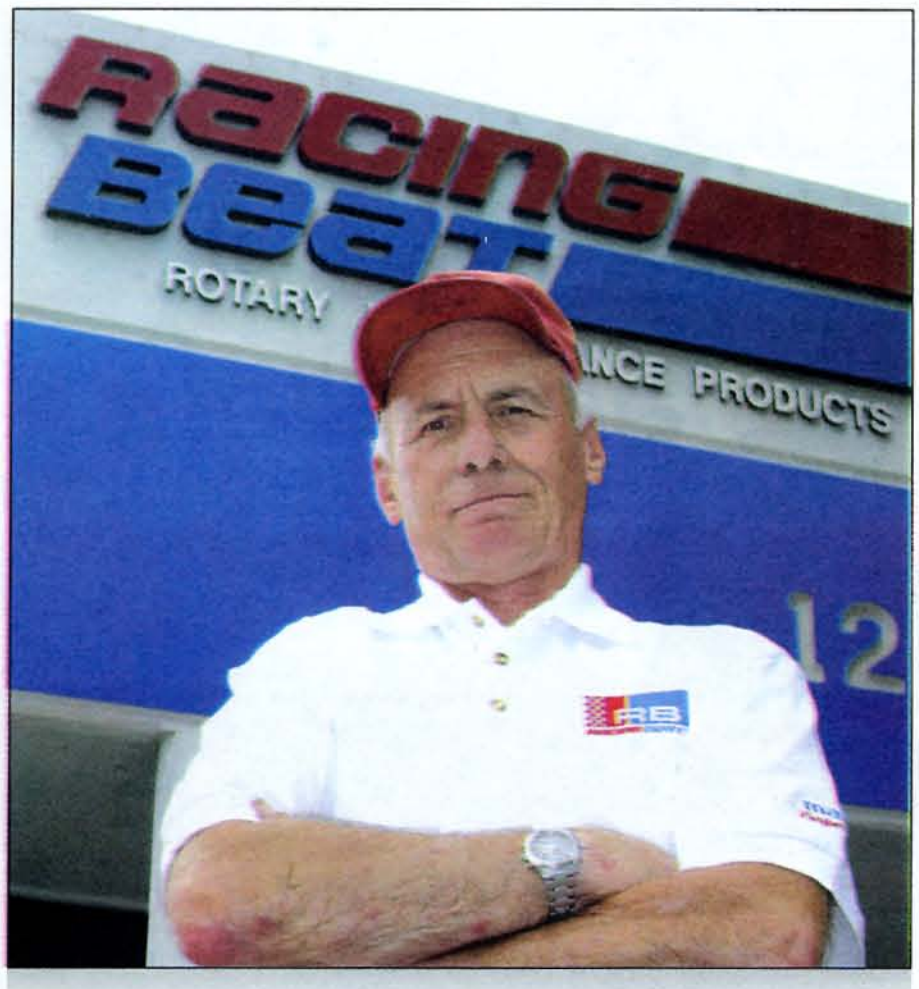


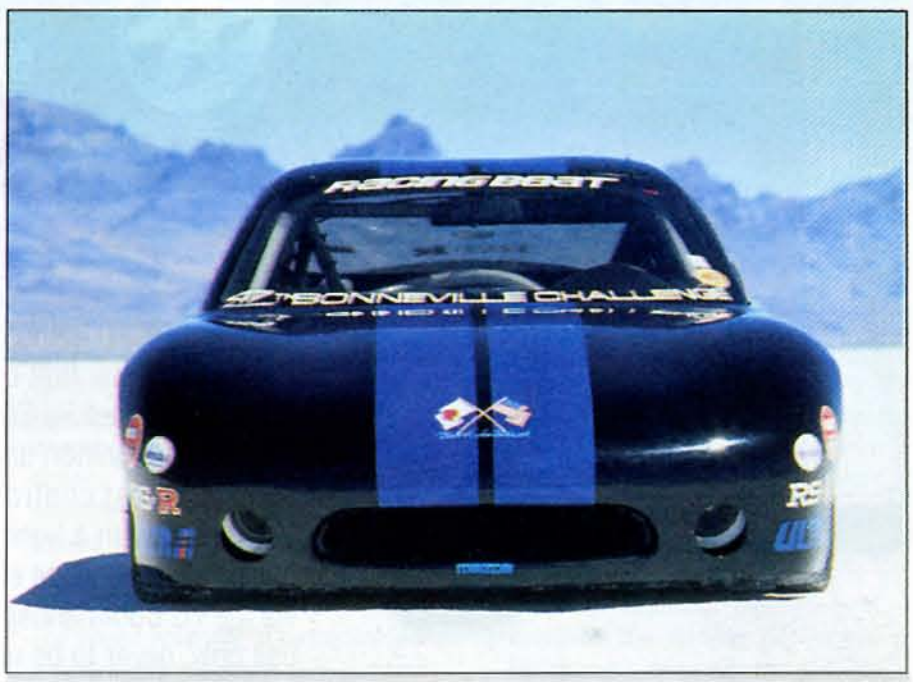
GOING RACING

SELECTING THE RIGHT CAR, CLASS AND COMBINATION TO GO RACING

Story By: Jim Mederer • Photos By: Jim Langer







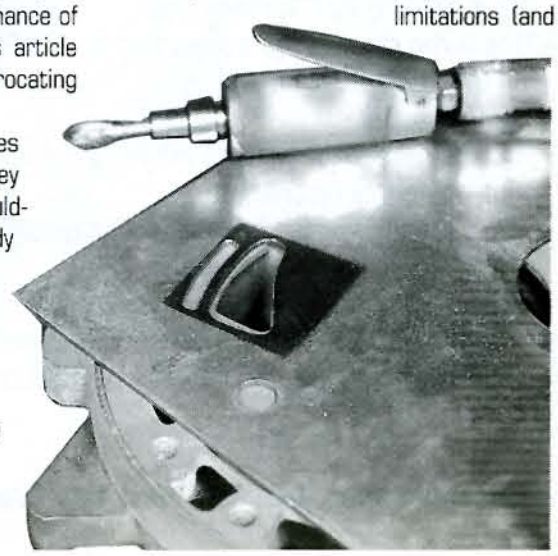
Hi everyone, and welcome to what will soon become **DRAG Sport**'s Rotary Corner. My name is Jim Mederer. My partner Ryusuke Oku and I started Racing Beat in 1971. For over 30 years, Racing Beat has been devoted to Rotary Engines and the chassis they came in. I have been asked to write this column on Rotary-related topics. While not a question and answer column, if you have any topic requests, send them along. The goal is to discuss things of interest to you, the racers.

This first installment will begin with choosing a car/class/engine, etc., right for you. The purpose of this article is to encourage you to think through and plan your effort to give you the best chance of success. Actually, much of this article will apply to both rotary and reciprocating engine enthusiasts.

The IDRC offers many classes for the huge variety of cars they accommodate. Many of you would-be racers at this stage already have an idea of the car/class/engine you would like to run. This is fine, to a point. Before you go past the "this looks good to me" stage, take a cold-hard look at the future. If the combination you like is already represented among the current racers, look at their results. Look at the level of modifications that these racers went through to obtain their current performance. If they're not already highly competitive, how much more is going to be required to get to the top? If the combination you are considering is not represented, think carefully about "blazing a new trail." Without access to parts, service, and knowledge for your combination, your job is likely to be a great deal tougher and potentially more expensive. Be sure you are prepared for this extra effort.

Now is the time to ask yourself some tough questions. Do you have enough of these items to make your vision a reality?

If you choose a class too high for your limitations (and



everyone has limitations), you may find that you are uncompetitive or even worse, you may never finish the project. Be honest about your motivation—are you really willing to devote hours and hours every week to prepare and run your car? Can you afford the cost? Don't focus only on the engine, there are many other areas of concern. Tires are one steady expense. Transmission repairs are another. The moral of this story is—don't pick a class that requires more than you can give. Start by running a bracket or street class car to get a feeling for competition, and your level of commitment. If you find that "Yes, I do want to do this very, very much. Then you can start planning your next move. It may take time to get all the elements in place, but don't rush!

Now we come to the "rotary" part of this column. For our purposes here, there are three "families" of rotary engines, and they correspond to the thickness of the apex seals.

1971-73 12A
5mm thick apex seals

1974-85
12A, 13B
3mm thick apex seals

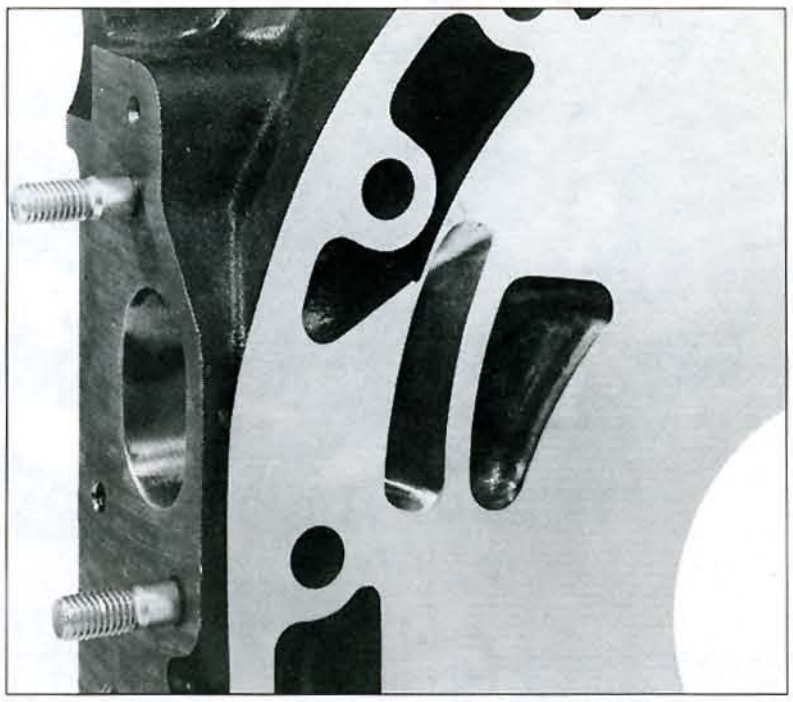
1986-95
13B, 20B
2mm thick apex seals

I suggest that you not consider the 1971-73 engines. The later engines have advantages, and the early parts are being discontinued.

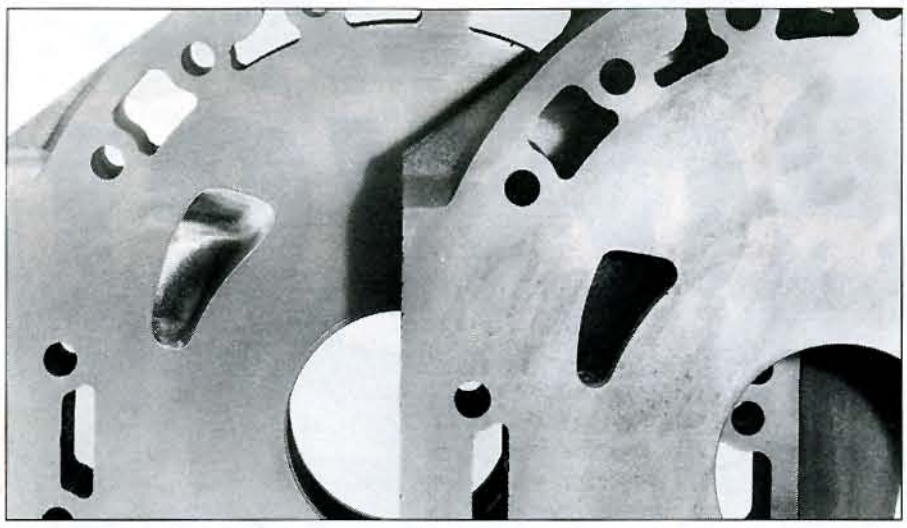
The 1974-85 engines are still popular and okay to use. However, they are getting pretty old and they, too, are gradually being discontinued.

The 1986-95 engines are usually the best starting point for a race engine. They are the strongest, lightest, and, thanks to lighter rotors, can rev the most in stock form. There are "low - compression" turbo rotors and "high - compression" rotors for normally aspirated use. Most race engines should start with the "turbo" (4 intake port) side housings, not the "6-port" style. Mazda developed the "6-port" for street use, and it works, but since you won't be racing below 5000 rpm, it offers no benefit.

Below are the power potentials of the four general types of intake porting. These numbers apply to normally aspirated engines with headers and open exhaust and give the approximate maximum potential of each porting type:



Engine Type	Stock Porting	Street Porting	Bridge Porting	Peripheral Porting
12A	150	220	260	310
13B	180	250	290	340
20B	270	375	435	510
Good Power Range for these porting types:	6~8000 rpm	7~9000 rpm	8~10000 rpm	8~10000 rpm



The above numbers are given as guidelines for comparison with piston engines—these figures are not absolutes and they are not averages either. They are difficult to obtain but possible. Aside from "stock" (which means just that except for the open header) they assume very good, low-restriction intakes and strong ignitions. The power potential of turbocharged or mechanically supercharged engines is impossible to predict since more boost and airflow means more power—right up to the point the engine breaks. So the real limit is the strength of the parts and correctness of the blueprinting, not the breathing ability.

Armed with the horsepower numbers shown above, study the IDRC Rulebook for each possible category. Can you build the chassis you are considering to the minimum weight and below (to allow for ballast placement)? The number of pounds you must carry for each horsepower is a pretty good gauge of expected elapsed time, so calculate the number of Pounds per Horsepower for your car and for the competition (of course, you must have honest, accurate power numbers for your competitors, but I cannot help you with that).

By now, you should have some idea of your competitive position within the IDRC family of classes. If the engine/chassis combination looks strong in one of these classes, Do It! If not, re-think your plan.

So far, I haven't talked about the chassis. There are so many pro's and con's for each chassis. There isn't any "correct" choice for everyone. However, I have some general comments to make: First, the 1985 and earlier cars have live axles and the axle shafts are not strong enough to take drag race abuse without occasional failures. Therefore, if the rules allow, consider changing the rear axle assembly to something that will be reliable and have rear axle ratio choices. The only exception to this would be where you are planning to run a VERY light car with moderate power and don't want the weight penalty that some classes require for a non-stock rear end. This brings up a problem with ALL Mazda platforms—there are very few ring and pinion ratios available to choose, and most of them are for RX-2's, RX-3's, and early

REALITY CHECKLIST

Time:
To prepare the car
To run the car
To maintain the car

Money:
To acquire the car
To prepare the car
To run the car
To maintain the car

Space:
Garage to work on the car
Storage space for the car
Storage space for the Trailer/Transporter (if you can't drive it to races)

Tools:
Hand tools
Specialty tools

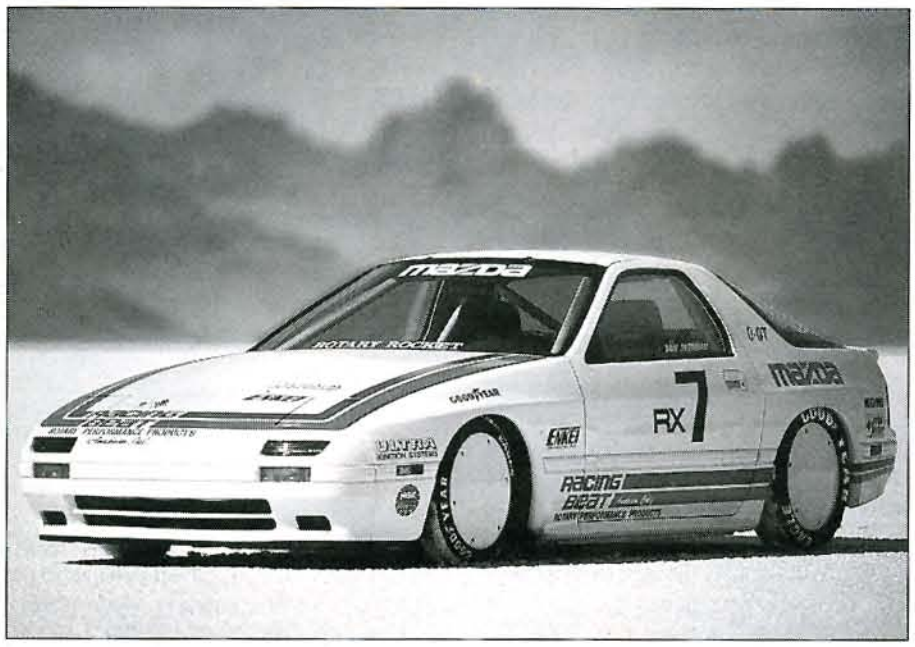
Transportation:
Trailer/Transporter/Tow vehicle

Commitment:
Personal resolve to compete

RX-7's. Again, no easy answers. At this point, you might want to visit our website, racingbeat.com, and look up the available rear axle ratios for the chassis you are considering. There you will find a formula that will allow you to understand the relationship between engine rpm, trans ratio, rear axle ratio, tire size and speed.

Most of these same points apply to Mazda's transmissions. They are actually pretty strong—but the synchros don't hold up well to speed shifts. If the rules allow a trans change to an aftermarket unit but penalize you with weight, you have to decide if you can go faster with a stock transmission and less weight - or not. Again, the formula mentioned above can help you understand the consequences of that decision.

Well, that's about it. The purpose of this article was to encourage you to think before you leap. If you are still unsure, GOOD. Think some more. Consider alternatives, then choose one. I assure you that thoughtful consideration is essential to your hopes of success. Good luck.



The Hook Up

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